

# Institute of Immunohematology (IIH), Mumbai

## Monoclonal Antibody Development of Foetal Haemoglobin

**Product/Process:** Development of monoclonal antibody to foetal haemoglobin.

**Application/Uses:** Murine monoclonal antibody is used accurately to quantitate the cells at low and high values of HbF. This antibody is also used for isolation of foetal cells from the maternal blood by flow cytometry for non-invasive prenatal diagnosis.

**Salient Technical Features:** Foetal haemoglobin (HbF) forms a predominant component after 8 weeks of gestation. It is increased to a variable extent in several hereditary disorders like  $\beta$ -thalassemia, hereditary persistence of foetal haemoglobin (HPFH), sickle cell anemia, besides acquired hematological disorders like megaloblastic anemia, leukemia, aplastic anemia *etc.* Conventionally, estimation of foetal Hb is usually done by alkali denaturation method. This method is not accurate at low and high values of HbF. Hence, a murine monoclonal antibody has been developed against foetal hemoglobin by cell culture methods which can accurately quantitate the number of F cells in the above conditions. This antibody will also be useful for isolation of foetal cells from the maternal blood by flow cytometry for non-invasive prenatal diagnosis. Such an antibody to foetal Hb is not yet commercially available. This antibody is highly specific as confirmed by immunoblot analysis and also by flow cytometry using mixtures of adult and cord cells in different proportions.

**Scale of Development:** This technology at present is at laboratory scale. The clones secreting this antibody are well preserved in liquid nitrogen and hence one can get unlimited supply of culture supernatant having the same specificity and sensitivity over a long period of time.

**Status of Commercialization:** An Indian patent has been filed (Application no. 869/MUM/2001). The technology is being commercialized.